

## **BMP #142 - Temporary Berms (Sandbags)**

### **DESCRIPTION**

A temporary berm is a ridge of compacted soil, or sandbags which intercepts and diverts runoff from small construction areas. Temporary berms are often constructed along the top edge of fill slopes but may also be constructed across the roadway (as a transverse berm) at a slight angle with the centerline.

Berms are used to prevent runoff onto newly constructed slopes until vegetation is established or until permanent measures are in place. They intercept flow from the construction area and direct it to temporary slope drains or to outlets where it can be safely discharged.

### **APPLICATIONS**

Temporary berms are used to direct or divert runoff flows, or as barriers to collect and store runoff. They are used at storm drain inlets, across minor swales and ditches, and for other applications where the structure is of a temporary nature.

### **LIMITATIONS**

Temporary berms do not provide filtration. Therefore, they can only be used for minor flows.

### **DESIGN PARAMETERS**

Soil berm: A berm of soil with an approximate height of 12 to 20 in (300 to 500 mm) with a minimum top width of 2 to 2.3 ft (600 to 700) mm and side slopes of 2:1 or flatter. Berms should be high enough to prevent flow from overtopping. Berms are normally constructed from embankment materials.

Sandbag berm: The following dimensions are suitable for sandbag berms.

- Height - 20 in (0.5 meter) minimum
- Top width - 20 in (0.5 meter) minimum
- Bottom width - approximately 4.25 to 5 ft (1.3 to 1.5 meters)
- Sandbag size - length 2 to 2.6 ft (0.6 to 0.8 meters), width 16 to 20 in (0.4 to 0.5 meters), depth or thickness 6 to 8 in (150 to 200 mm), and weight 88 to 132 lb (40-60 kg)

#### **Targeted Pollutants**

- ☒ Sediment
- ☐ Phosphorus
- ☐ Trace metals
- ☐ Bacteria
- ☐ Petroleum hydrocarbons

#### **Physical Limits**

Drainage area 5 ac

Max slope 50%

Min bedrock depth N/A

Min water table N/A

SCS soil type ABCD

Freeze/Thaw good

Drainage/Flood control yes

## CONSTRUCTION GUIDELINES

Soil berm: All berms should be graded to drain to a slope drain inlet. When practical, embankments should be constructed with a gradual slope to one side of the embankment. This will permit the placement of all temporary berms and slope drains on one side of the embankment. When fills are constructed on sidehill slopes, the top surface should slope toward the inside so that surface runoff will be away from the fill slope.

- Compact the entire width of the berm. This can be accomplished with the track of a bulldozer or, preferably, with a grader wheel (rubber).

### Sandbag berm:

- Install so that flow under or between bags is prevented.
- Stack the sandbags in an interlocking fashion to provide additional strength for resisting the force of the flowing water. However, do not stack them more than three high without broadening the foundation using additional sandbags, or providing additional stability.
- Sandbag sediment barriers should store the runoff from design storm as specified.

## MAINTENANCE:

Temporary berms should be inspected and repaired periodically as well as after each significant rainfall.

Sandbags should be reshaped or replaced as needed during inspection. Additional inspections should be made daily during wet weather. When silt reaches 6 inches (150 mm), the accumulated silt should be removed and disposed of at an approved site in a manner that will not contribute to additional siltation. The sandbag berm should be left in place until all upstream areas are stabilized and accumulated silt has been removed. Removal of bags should be done by hand.